Table 9 – Sagebrush Canopy Cover Classes
(from SEORMP/FEIS, Appendix F, Table F-1)

General habitat relationships of sagebrush canopy cover (as determined by line intercept) and herbaceous understory composition to wildlife habitat values and use

Class 1 No sagebrush canopy cover— Characteristic of rangelands that exhibit a grassland aspect and low vegetative structure. Generally common and widespread species of wildlife in Malheur County (e.g., pronghorn and horned larks) can be supported. Forage and insects may be abundant even for species that are dependent on sagebrush cover availability for nesting, hiding, and other needs. Native or nonnative Class 1 rangeland extent may be a wildlife issue of concern due to habitat fragmentation especially when they dominate large tracts of land within a GMA. Class 1 rangelands do not necessarily and always pose a threat to wildlife diversity because they may in fact meet part or all of the habitat requirements of certain wildlife species. Depending on rangeland ecological status and site potential, grass and forb values are highly variable.

Class 1(A): Plant communities that are dominated by native grasses and forbs which generally provide a portion of habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are typically observed after fire, before sagebrush species recolonize. These plant communities are desirable to achieve in a patchy, mosaic pattern within the sagebrush-steppe, intermingled with Class 2(A, C), Class 3(A, B, C), Class 4(B), and Class 5(B:25% to near 35% canopy cover) plant communities.

Class 1(B): Plant communities that are dominated by introduced annual grasses and forbs such as cheatgrass, medusahead, and tumblemustard, which do not provide habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies). Before converting to annual grasses and annual forbs, these Class 1(B) plant communities were more likely to have been Wyoming big sagebrush or basin big sagebrush plant communities than either low sagebrush or mountain big sagebrush plant communities (Miller and Eddleman 2000). These plant communities are biologically and physically unstable because of high risk for repeated fire. High plant density of these annual plants, combined with great amounts of litter, effectively eliminate biological soil crusts. The combination of these conditions inhibit native plant recovery.

Class 1(C): Plant communities that are dominated by seedings of crested wheatgrass or other exotic perennial grasses which generally do not provide habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are lacking in sagebrush canopy cover either because a sagebrush seed source is lacking, or there has not been sufficient time elapsed for sagebrush species to recolonize the seeding. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies).

Class 1(D): Plant communities that are closed woodlands dominated by species such as western juniper. Particularly in the mountain big sagebrush and low sagebrush plant communities, western juniper encroachment and increasing density can result in near total loss of sagebrush canopy cover (Miller and Eddleman 2000). These Class 1(D) plant communities do not provide habitat needs for sage grouse (sage grouse did not select western juniper communities in central Oregon for nesting or winter habitat [BLM 1994; Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitats. In many of these plant communities, excessive livestock grazing pressure and/or fire suppression have been the main contributors to their formation. These plant communities have depleted herbaceous understories in addition to depleted shrub canopy cover, and could have depleted biological soil crusts if the sites are capable of supporting biological soil crusts. The depletion of the shrub, herbaceous, and biological soil crust cover can result in accelerated erosion on these sites. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies) and supported a sagebrush plant community(ies) before the western juniper encroached.

Class 2 Trace to 5%— Characteristic of rangelands that exhibit a predominantly grassland aspect and low vegetative structure. Canopy cover in this range of values is often indicative of relatively recent fire or other treatment effects. They indicate recolonization of sagebrush is underway. Generally common and widespread species of wildlife (e.g., pronghorn and horned larks) can be supported. Most of the complex shrub cover needs of sage grouse and other sagebrush dependent wildlife (structure, forage, and cover) are very limited or absent altogether in Class 2 rangelands. Connelly et al. refer to the cessation of sage grouse nesting where live sagebrush canopy cover values go below 5%. Depending on rangeland ecological status and site potential, grass and forb values are highly variable.

Class 2(A): Plant communities that are dominated by native grasses and forbs with some recruitment of sagebrush species, which provide a portion of habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are typically observed after fire, when sagebrush species are recolonizing. These plant communities are desirable to achieve in a patchy, mosaic pattern within the sagebrush-steppe, intermingled with Class 1(A), Class 2(C), Class 3(A, B, C), Class 4 (B), and Class 5(B:25% to near 35% canopy cover) plant communities.

Class 2(B): Plant communities that are dominated by introduced annual grasses and forbs such as cheatgrass, medusahead, and tumblemustard, where sagebrush species are generally declining in abundance attributable to too frequent of fire. These plant communities are typically not providing habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies). These plant communities are biologically and physically unstable because of high risk for repeated fire. High plant density of these annual plants, combined with great amounts of litter, effectively eliminate biological soil crusts. The combination of these conditions inhibit native plant recovery.

Class 2(C): Plant communities that are dominated by seedings of crested wheatgrass or other exotic perennial grasses, where sagebrush species are in the early stages of recolonization. These plant communities might not be providing the complex shrub-grass-forb cover and food needs of sage grouse and other wildlife that use sagebrush-steppe habitat, but if there is active recolonization of sagebrush species, there is high future likelihood for providing habitat needs. These plant communities are desirable to sustain if they are moving successionally to greater abundance of sagebrush species.

Class 2(D): Plant communities that are woodlands dominated by species such as western juniper. Particularly in the mountain big sagebrush and low sagebrush plant communities, western juniper encroachment and increasing density can result in near total loss of sagebrush canopy cover (Miller and Eddleman 2000). These plant communities do not provide habitat needs for sage grouse (sage grouse did not select western juniper communities in central Oregon for nesting or winter habitat [BLM 1994; Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitats. In many of these Class 2(D) plant communities, excessive livestock grazing pressure and/or fire suppression have been the main contributors to their formation. These plant communities have depleted herbaceous understories in addition to depleted shrub canopy cover, and could have depleted biological soil crusts if the sites are capable of supporting biological soil crusts. The depletion of the shrub, herbaceous, and biological soil crust cover can result in accelerated erosion on these sites. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies) and supported a sagebrush plant community(ies) before the western juniper encroached.

Class 3 Greater than 5%, up to 15%— Characteristic of rangelands that exhibit a shrub land aspect and desirable complex vegetative structure that is capable of supporting a variety of sagebrush-dependent wildlife (including many special status species), especially at the higher canopy values of 10 to 15%. Connelly et al. suggest that sage grouse are able to winter within habitats that support at least a 10% canopy cover of sage if the shrub cover is available 10 to 12" above snow cover. Sage grouse nesting habitat values are thought to be present at the upper (near 15%) sagebrush canopy cover values. Unpublished BLM surveys suggested sagebrush obligate songbirds began to reoccupy crested wheatgrass grasslands where the sagebrush canopy was more than 5%. Songbird studies in Nevada crested wheatgrass seedings, Macadoo (1989), showed that a balanced composition of grassland and shrub dependent species were present when shrub overstory recovery was around 10% line intercept values. Depending on rangeland condition and site potential, grass and forb values are highly variable.

Class 3(A): Plant communities supporting low sagebrush or Wyoming big sagebrush, with an understory of native grasses and forbs (typically about 10% grass canopy cover and less than 10% forb canopy cover), and intact biological soil crusts in interplant spaces, represent the potential natural vegetation for these plant communities (Miller and Eddleman 2000). Class 3(A) low sagebrush or Wyoming big sagebrush plant communities provide habitat needs for sage grouse (e.g., winter habitat [Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitat. They are desirable to sustain in a patchy, mosaic pattern within the sagebrush-steppe, intermingled with Class 1(A), Class 2(A, C), Class 3(B, C), Class 4(B), and Class 5(B:25% to near 35% canopy cover) plant communities.

Class 3(B): Plant communities supporting basin big sagebrush or mountain big sagebrush, with an understory of native grasses and forbs, which are typically moving successionally to greater abundance of sagebrush species and are not yet at the potential natural vegetation for these two plant communities. Despite this, Class 3(B) basin big sagebrush or mountain big sagebrush plant communities provide habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitat. Their presence in a mosaic, intermingled with Class 1(A), Class 2(A, C), Class 3(A, C), Class 4(B), and Class 5(B:25% to near 35% canopy cover) plant communities, should be considered desirable for sagebrush-steppe habitat. It should be recognized however, that these Class 3(B) plant communities are probably transitory and should be permitted to move successionally to Class 4 (see Class 4(B) for more detail).

Class 3(C): Plant communities that are dominated by seedings of crested wheatgrass or other exotic perennial grasses, where sagebrush canopy cover is on the increase attributable to sagebrush colonization. While not providing the quality of habitat that Class 3(A) or Class 3(B) plant communities do, because typically there is not a diverse grass or forb component in these seedings, Class 3(C) plant communities do provide added structure because of the sagebrush, which provides habitat for some wildlife that use sagebrush-steppe habitat.

Class 4 Greater than 15%, up to 25%— Characteristic of rangelands that exhibit a shrubland aspect and desirable complex vegetative structure that is capable of supporting a wide variety of sagebrush-dependent wildlife (including many special status species). Sage grouse breeding and wintering can both occur within habitats with Class 4 shrub cover. Depending on rangeland condition and site potential, grass and forb values are highly variable.

Class 4(A): Plant communities supporting low sagebrush or Wyoming big sagebrush, which typically show a decrease in native grass and forb canopy cover (particularly where sagebrush canopy cover is 20% or greater [Miller and Eddleman 2000]), and biological soil crust development, compared with Class 3(A) low sagebrush or Wyoming big sagebrush plant communities. Disturbances such as excessive livestock grazing pressure are often contributory to development of Class 4(A) plant communities (Miller and Eddleman 2000). Class 4(A) is not the potential natural vegetation, nor a desirable outcome, for these two plant communities when the inherent capabilities of soils, landform, and climate are factored in. However, Class 4(A) plant communities can provide some habitat needs for sage grouse (e.g., winter habitat [Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitat.

Class 4(B): Plant communities supporting basin big sagebrush or mountain big sagebrush, with an understory of native grasses and forbs, more often than not represent the potential natural vegetation for these plant communities. Class 4(B) plant communities provide habitat needs for sage grouse (e.g., nesting and brood-rearing habitat [Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitat. Their presence in a mosaic, intermingled with Class 1(A), Class 2(A and C), Class 3(A, B, C), and Class 5(B:25% to near 35% canopy cover) plant communities, should be considered desirable for sagebrush-steppe habitat.

Class 4(C): Plant communities supporting mountain big sagebrush or low sagebrush, with tree seedlings (particularly western juniper) in the understory. Particularly in the mountain big sagebrush and low sagebrush plant communities, western juniper encroachment and increasing density can result in near total loss of sagebrush canopy cover (Miller and Eddleman 2000). These Class 4(C) plant communities currently provide habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. However, with continued growth and increasing density of the western juniper, sagebrush will decline and these plant communities will transition and at some point not provide habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. On many of these Class 4(C) plant communities, excessive livestock grazing pressure and/or fire suppression have been the main contributors to their formation. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies) and supported a sagebrush plant community(ies) before the western juniper encroached.

Class 5 Greater than 25%— Characteristic of rangelands that exhibit a shrubland aspect and complex vegetative structure that is capable of supporting sagebrush dependent species. Class 5 types may, though not always, support diminished herbaceous cover values. However, Class 5 cover values need to be present for some species such as the pygmy rabbit. Mule deer and elk use this type of habitat for hiding in rangelands where topographic cover is limited and/or tall structure provided by mountain shrubs is absent. Class 5 shrub cover does not necessarily imply poor or low value habitat conditions for wildlife.

Class 5(A): Plant communities supporting basin big sagebrush or mountain big sagebrush, with an understory of native grasses and forbs, can represent the potential natural vegetation for these plant communities, particularly for canopy cover that ranges from 25% to less than 35% (Miller and Eddleman 2000). However, as sagebrush canopy cover approaches 35%, the understory of native grasses and forbs decreases. Class 5(B) basin big sagebrush or mountain big sagebrush plant communities can provide habitat needs for sage grouse (e.g., nesting and brood-rearing habitat [Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitat (e.g., pygmy rabbit). Class 5(B) that has sagebrush canopy cover in the range of 25% to less than 35% is probably within the range of what the soils, landform, and climate would sustain for these two plant communities, whereas canopy cover Class 5(B) that approaches or exceeds 35% in these two plant communities is probably undesirable and a result of excessive livestock grazing pressure and/or fire suppression

Class 5(B): Plant communities supporting low sagebrush or Wyoming big sagebrush, which typically are depauperate in understory native grasses and forbs (Miller and Eddleman 2000) and often have an understory composed of exotic annuals such as cheatgrass and mustards. Understory native grasses, forbs, and biological soil crusts would be primarily restricted to microsites beneath shrub canopies and would rarely be found in interspace microsites. Disturbances such as excessive livestock grazing pressure are often contributory to development of Class 5(A) plant communities (Miller and Eddleman 2000). Although these low sagebrush or Wyoming big sagebrush plant communities can provide some habitat needs for sage grouse (e.g. winter habitat; Miller and Eddleman 2000) and other wildlife that use sagebrush-steppe habitat, these Class 5(A) plant communities are not the potential natural vegetation, nor a desirable outcome, for these two plant communities when the inherent capabilities of soils, landform, and climate are factored in.

Table 9 – Sagebrush Canopy Cover Classes